REMARKS

I. Status of the Application

Claims 19-84 are presently pending in the application. Claims 19-70 and 72-84 are allowed. Claim 71 stands rejected under 35 USC § 103(a) as being obvious over U.S. Patent No. 4,984,959 to Kato in view of U.S. Patent No. 4,803,895 to Nishizawa and U.S. Patent No. 3262593 to Hainer; and over Kato in view of U.S. Patent No. 5,982,127 to Matsubara and Hainer.

Applicant thanks the Examiner for the indication that claims 19-70 and 72-84 are allowable.

Reconsideration of the application in view of the following remarks, and allowance of claim 71 is respectfully requested.

II. Claim 71 is Nonobvious over Kato, Nishizawa and Hainer

Claim 71 stands rejected under 35 USC § 103(a) as being obvious over Kato in view of Nishizawa and Hainer. This rejection is respectfully traversed.

Kato discloses a robotic arm having a body 1, a trunk 2, a shoulder 31a, an upper arm 31e, a forearm 51e connected to upper arm 31e by an elbow, and a wrist 51c holding a hand device 7. Motors (16a, 14a, etc.) are housed in body 1.

Nishizawa discloses a balancing mechanism for a robot. A swivel support body 10 is mounted on a swivel slide 2 that is rotatably mounted to a base 1 of a robot. A first vertical arm 4 is pivotally mounted to an end of body 10, and a second horizontal arm 5 is pivotally mounted to arm 4. A wrist 6 is mounted at an end of second arm 5. The balancing mechanism for vertical arm 4 comprises a horizontal shaft 12 pivotally supported on body 10, a first link 14 pivotally

connected to vertical arm 4, a first lever 16 pivotally mounted on body 10, and a first spring 18 pivotally supported by a pin 19 on body 10 at one end and at its other end to lever 16. The balancing mechanism for horizontal arm 5 comprises a shaft 21 that rotatably couples arm 5 to arm 4, an L-shaped lever 22 rotatably mounted on shaft 12, a second link 25 pivotally connected between lever 22 and arm 5, a third link 27 pivotally coupled to lever 22, a third lever 29 pivotally supported on body 10, and a second spring 31 pivotally supported at one end by pin 19 on body 10 and at its other end to lever 29.

Hainer discloses a wall mounted support structure 10 attached to a vertical wall 12, and which supports a boom system 14. A lower truck assembly 18 is mounted for movement along a lower rail system 20. An upper truck assembly 22 is mounted for movement along an upper rail system 24. A bridge 26 is rotatably connected at its ends to lower and upper assemblies 18, 22. A carriage 28 is attached to bridge 26 and moves along the longitudinal axis of the bridge.

As noted by the Examiner, Kato does not disclose a compensating means. The compensating means of Nishizawa is not provided between a base plate, upon which a foot part is mounted, and a shoulder axis, as required by claim 71. Initially, it is noted that Nishizawa does not disclose a base plate to which a foot part is mounted. Further, as can be seen clearly in Figs. 1a-c, and 2, the compensating means of Nishizawa, which comprises the balancing mechanisms described above, is located entirely above its foot part, namely, base 1. Thus, Nishizawa does not disclose or make obvious compensating means provided between a base plate and a shoulder axis. Consequently, the proposed combination of Kato and Nishizawa simply does not make obvious the required limitation.

Further, it would not have been obvious to modify Kato, given the teachings of Nishizawa, to provide a compensating means between a base plate and a shoulder axis.

Nishizawa, in fact, teaches away from providing a compensating means between a base plate and a shoulder axis. The balancing mechanism of Nishizawa has a number of levers, links, pins and springs that are directly connected to operating arms 4 and 5. In order for the compensating mechanism to work, it must be in direct contact with arms 4 and 5. To place a balancing mechanism between a base plate and a shoulder axis would defeat the purpose of the balancing mechanisms of Nishizawa. Accordingly, one skilled in the art would not have been motivated to modify Kato by placing the balancing mechanisms of Nishizawa in Kato between a base plate and a shoulder axis and, in fact, would have been taught away from the use of such an arrangement.

With respect to Hainer, it is unclear from the Office Action which element of Hainer is believed to be a footpart, and which element is believed to be a base plate. Nonetheless, Hainer does not disclose or make obvious a foot part mounted on a base plate and which is rotatable about an axis that is at an angle with respect to a shoulder axis. Further, Hainer fails to correct the deficiencies of Kato and Nishizawa discussed above. Accordingly, the rejection is improper and should be withdrawn.

III. Claim 71 is Nonobvious over Kato, Matusbara and Hainer

Claim 71 stands rejected under 35 USC § 103(a) as being obvious over Kato in view of Matsubara and Hainer. This rejection is respectfully traversed.

Matsubara discloses a robot 1 having a vertically movable mount structure 2. A balancing device A comprises a pair of springs 6 in series with a wire 7. Balancing device A is secured at one end to a bottom of robot 1 and at its other end to a bracket 9, which moves vertically with mount structure 2. A first operating arm 10 is rotatably supported by mount

structure 2. A second operating arm 14 is rotatably supported at one end by first operating arm 10. A rotation shaft 16 is mounted on the other end of second operating arm 14.

As noted by the Examiner, Kato does not disclose a compensating means. The compensating means of Matsubara is not provided between a base plate, upon which a foot part is mounted, and a shoulder axis, as required by claim 71. Rather, the compensating means of Matsubara, its balancing device A, is contained within movable mount structure 2 and is spaced from its shoulder axis. The sole function of the balancing device is to balance the weight of mount structure 2 during vertical movement thereof (see, e.g., col. 1, lines 11-13, and 51-59; col. 2, lines 33-37, and 55-63; col. 3, lines 47-48; and col. 3, line 67 through col. 4, line 20). That is, the balancing device compensates for moments caused by weight only. Consequently, it would serve no purpose for the compensating means of Matsubara to be provided between a base plate and shoulder axis, and there would be no motivation or suggestion for one skilled in the art to combine the balancing means of Matsubara with Kato to provide a compensating means between a base plate and a shoulder axis.

With respect to Hainer, it is unclear from the Office Action which element of Hainer is believed to be the footpart, or which element is believed to be the base plate. Nonetheless, Hainer does not disclose or make obvious a foot part mounted on a base plate and which is rotatable about an axis that is at an angle with respect to a shoulder axis. Further, Hainer fails to correct the deficiencies of Kato and Matsubara discussed above. Accordingly, the rejection is improper and should be withdrawn.

IV. Conclusion

In view of the foregoing amendments and remarks, pending claim 71 is believed to be allowable, and an indication to that effect from the Examiner is respectfully requested at this time. If a telephone conversation with applicant's attorney would expedite prosecution of the above-referenced application, the Examiner is urged to call the undersigned at the number below.

Please apply any required charges or credits to our Deposit Account No. 19-0733.

Respectfully submitted,

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